UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/523,796	02/08/2005	Kun Li	46843.212557	6163

26694 7590 09/28/2007

VENABLE LLP
P.O. BOX 34385
WASHINGTON, DC 20043-9998

EXAMINER	
BUI, BRYAN P	

ART UNIT	PAPER NUMBER
2109	

MAIL DATE	DELIVERY MODE
09/28/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/523,796	LI ET AL.	
	Examiner	Art Unit	
	Bryan P. Bui	2109	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *08 February 2005*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-29* is/are pending in the application.

4a) Of the above claim(s) *1-7* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *8-29* is/are rejected.

7)☒ Claim(s) *12* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☒ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *08 February 2005* is/are: a)☐ accepted or b)☒ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date *08/31/07;10/02/06;05/06/05*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

1. Applicant has submitted a preliminary amendment to Application No. 10/523796 on February 08, 2005 claiming priority from PCT Application PCT/CN03/00643 filed on August 08, 2003 claiming priority from Foreign Application (CHINA) 02130031.3 filed on August 10, 2002. This following office action is based on the preliminary amendment filed on February 08, 2005 having claims 1-29 and Figures 1-2.

Priority

2. Acknowledgment is made of applicant's claim for foreign priority under 35 U.S.C. 119(a)-(d). The certified copy has been filed in parent Application No. PCT/CN03/00643 filed on August 08, 2003. The priority date considered for the application is August 10, 2002, which is the filing date of Foreign Application mentioned above.

Status of Claims

Claims 1-7 are cancelled by applicant, therefore are not considered in this action.

Claims 8-29 are pending and have been examined.

Claims 8,17 and 25 are independent claims.

Claims 8-29 are rejected for the reasons discussed in detail below.

Information Disclosure Statement

3. The information disclosure statements (IDS) submitted on 10/02/2006 and 08/31/2007 have been received and entered into the record. The submission is in compliance with the provisions of 37 CFR 1.97.Accordingly, the information disclosure statement is being considered by the examiner.

The information disclosure statement filed on 05/06/2005 fails to comply with the provisions of 37 CFR 1.97, 1.98 and MPEP § 609 because applicant failed to provide the English translation of the abstract of the foreign patent documents: CN 1353367 and CN 1333965. It has been placed in the application file, but the information referred to therein has not been considered as to the merits. Applicant is advised that the date of any re-submission of any item of information contained in this information disclosure statement or the submission of any missing element(s) will be the date of submission for purposes of determining compliance with the requirements based on the time of filing the statement, including all certification requirements for statements under 37 CFR 1.97(e). See MPEP § 609.05(a).

Specification

4. The title of the invention **"Flow-Control Method For Data Traffic Transmitted Through Synchronous Digital Hierarchy Network"** is not conformed with the title specified by applicant in the Application Data Sheet (ADS) **"Flow Control Method Of Data Service Transmission In SDH Network"**. Applicant is required to correct the title of the invention in the specification to make it unique for the entire record.

Drawings

5. The drawings are objected to because they lack of a descriptive legend for the acronyms AT, AR, BT and BR as shown in Figure 2 . Moreover, the drawings are also objected to as failing to comply with 37 CFR 1.84(p)(5) because they include the following reference character(s) not mentioned in the description: "AT" and "capping process". Corrected drawing sheets in compliance with 37 CFR 1.121(d), or amendment to the specification to add the reference character(s) in the description in compliance with 37 CFR 1.121(b) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New

Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Claim Objections

6. Claim 12 is objected to under 37 CFR 1.75(c), as being of improper dependent form for failing to further limit the subject matter of a previous claim.

Regarding claim 12 (depending on claim 8), the limitation "wherein a carrier for LFP frames is configured according to a standard IEEE 802.3x PAUSE frame structure" is identical in wording to that of claim 10 (depending on claim 9). It is noted that both claims 10 and 12 are directed to the same limitation "LFP frames" as cited in claim 8. Thus, claim 12 recites nothing but what have already claimed in claim 10, so it is objected to as set forth above. Applicant is required to cancel the claim(s), or amend the claim(s) to place the claim(s) in proper dependent form, or rewrite the claim(s) in independent form.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

7. Claims 13-16 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 13 depending on claim 8 recites the limitations "said framing" in line 2 and "the control field" in lines 4, 8. There is no antecedent basis for those limitations in the claim. For the limitation "said framing", it seems applicant is referring to "phrasing" as cited in claim 8. If so, appropriate correction is required.

Claim 14 depending on claim 13 recites the limitation "said lower threshold" in line 4.There is no antecedent basis for this limitation in the claim.

Claim 15 depending on claim 8 recites the limitation "said user device" in lines 4, 5, 7. There is insufficient antecedent basis for this limitation in the claim.

Claim 16 depending on claim 15 recites the limitation "said lower threshold" in line 4.There is no antecedent basis for this limitation in the claim.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

8. Claims 8-10 and 12, 17-19 and 22-29 are rejected under 35 U.S.C. 102(b) as being anticipated by European Patent Application No EP 1006751 A2 issued to Ramsden et al. and published on 06/07/2000 (hereinafter "Ramsden").

Ramsden discloses: A flow-control method for data traffic transmitted through a synchronous digital hierarchy (SDH) network (see Ramsden, the Abstract: **"A method for operating the apparatus comprises means for controlling flow of frame based data transmitted from a local frame based data channel interface over a synchronous digital network"**).

As to claim 8,

A) creating and encapsulating, during data transmission through said SDH network, one or more line flow-control protocol (LFP) frames, according to a utilization condition of a frame cache of a first Ethernet over SDH/SONET (EoS) device coupled to said SDH network, wherein each LFP frame is mapped to an SDH payload as a common data frame (see figure 1 and paragraph [0024]: **[Multiplexers 100, 101 may each be considered to comprise a payload mapping function configured to map Ethernet frame based data into one or more concatenated SDH virtual containers(VC's) and a rate modification function for effecting flow control of frame based data, transmitted from an Ethernet switch 103, 104 over synchronous digital network 102]** (lines 45-51)); and

B) transferring said one or more LFP frames to a second EoS device coupled to said SDH network (see also figure 1 and paragraph [0024]); and

C) demapping the SDH payload at said second EoS device(see Figure 4, element

413: Frame De-stuffer(HDLC de-stuffer); and

D) identifying said one or more LFP frames at said second EoS device **[Ethernet data frames received so that start and end frame boundaries may be identified and also so that any data values having the value of a start and end of frame value are labeled to enable a receiving entity to decipher start/end information from actual data]**(column 13, lines 7-12); and

E) phrasing and executing flow-control information contained in said one or more LFP frames at said second EoS device **[Following step 804 control is passed to step 805 wherein the frame received at step 801 is executed. In other words, at step 805 the pause frame is executed so that the specified transmission inhibition time interval(specified by the received pause frame) is invoked upon Ethernet switch 103]**(column 18, lines 11-17).

As to claim 9,

wherein said creating and encapsulating comprises:

A) continuing to monitor data volume in an uplink direction in said frame cache of said first EoS device **[Operation of frame transmission buffer 411 and frame receipt buffer 414 is control by micro-processor, known herein as a buffer monitor 416]** (see column 13, lines 27-29); and

B) inserting a control field into each of said one or more LFP frames, said control field being based upon said data volume in said frame cache, wherein: if said data volume exceeds an upper threshold, said encapsulating includes periodically sending LFP frames whose control field controls to stop sending; if said data volume falls below a lower threshold, said encapsulating includes periodically sending LFP frames whose control field controls to start sending; and if said data volume falls between said upper threshold and said lower threshold, said encapsulating does not send LFP frames

[Field 903 is known in the art as "which reset" and this field may take various control values of various control parameters depending upon the particular implementation. Similarly, field 904 comprises control information related to inhibition of access to particular read and write registers] (column 19, lines 44-49) and **[predetermining a data amount threshold level for said buffer]** (column 3, lines 35-36] and **[in respect to said buffering means, associating a data amount threshold level with at least one of said frame based data sources; with respect to a said threshold level, monitoring an amount of data received from said associated data source; and in response to said step of monitoring said amount of said data received with respect to its associated threshold level, generating a signal to adapt said rate of transmission of said data from said associated data source]**(column 5, lines 18-28); and

C) wherein said one or more LFP frames are inserted at the head of a data queue for encapsulation and are given priority, and wherein if there are no Ethernet frames being encapsulated, the LFP frames are immediately encapsulated, and otherwise, the LFP frames are encapsulated immediately after current Ethernet frames are encapsulated **[Following step 704 control is passed to step 705 wherein buffer monitor 416 is configured to substantially immediately issue a signal along control line 419 to pause frame store 420 so as to cause pause frame store 420 to transmit the aforementioned prepared pause frame along control line 421 whereafter the pause frame is inserted into the data stream (i.e in a Virtual Container or a plurality of Virtual Containers) being transmitted between frame transmission buffer 411 and frame stuffing means 412]** (column 16, line 52 – column 17, line 3).

As to claims 10 and 12,

wherein a carrier for LFP frames is configured according to a standard IEEE 802.3x

PAUSE frame structure (see Figure 4, element (420): Pause Frame Store together with paragraph [0030], and **[Switches 103 and 104 may each comprise an IEEE 802.3 switch (such as an Ethernet switch)]** (column 9, lines 18-20) and **[the present invention may be configured to utilize pause frames as described in the IEEE 802.3x standard]** (see column 19, lines 57-58).

As to claims 17, 18 and 22-24, all the limitations of these claims have been noted in the rejection of claims 8 and 9, therefore they are rejected under similar rationale (see the rejection of claims 8 and 9).

As to claim 19, all the limitation of this claim have been noted in the rejection of claims 10 and 12, therefore it is rejected under similar rationale (see the rejection of claims 10 and 12).

As to claim 25, all the limitations of this claim have been noted in the rejection of claim 9, therefore it is rejected under similar rationale as claim 9.

As to claims 26 and 27, all the limitations of those claims have been noted in thie rejection of claims 8 and 15, therefore they are rejected under similar rationale (see the rejection of claims 8 and 15).

As to claims 28 and 29,all the limitations of those claims have been noted in the rejection of claims 8 and 13, therefore they are rejected under same rationale (see the rejection of claims 8 and 13).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

9. Claims 13-16 are rejected under 35 U.S.C. 103(a) as being unpatentable over European Patent Application No EP 1006751 A2 issued to Ramsden et al. in view of Yu (US Pat No. 7,031,341 B2).

As to claim 13, Ramsden does not expressly disclose the claimed feature of "wherein said second EoS device processes said LFP frames in an LFP frame regeneration pattern, said framing and executing comprising: if the control field in an LFP frame does not control to start sending, halting encapsulating of data at said second EoS device to cause data to stack up and to cause a user device coupled to said second EoS device to stop sending Ethernet frames, said LFP frame being defined by IEEE 802.3x as a PAUSE frame or a back pressure signal; and if the control field in an LFP frame controls to start sending, continuing to normally encapsulate and map data at said second EoS device". Yu, from the same or similar field of endeavors, discloses placing LAPS frames into low order VCs with octet interleaving based on multiplexer structure of SDH, transmitting them in the sequence of multiplex section, regenerator section and Electrical/Optical/Radio section, and then extracting LAPS frames on a receiving side in a n opposite sequence (see Yu, column 8, lines 4-9 together with Figures 2,3). Thus, it would have been obvious to one ordinary skill in the art at the time the invention was made to modify the method of Ramsden by

utilizing regeneration pattern as taught by Yu to achieve the claimed feature of "wherein said second EoS device processes said LFP frames in an LFP frame regeneration pattern, said framing and executing comprising: if the control field in an LFP frame does not control to start sending, halting encapsulating of data at said second EoS device to cause data to stack up and to cause a user device coupled to said second EoS device to stop sending Ethernet frames, said LFP frame being defined by IEEE 802.3x as a PAUSE frame or a back pressure signal; and if the control field in an LFP frame controls to start sending, continuing to normally encapsulate and map data at said second EoS device". Such combination would have permitted Ramsden's method to provide a way to communication between a telecom SDH/SONET transmission device and a remote access datacom device by adapting MAC frame directly to SDH/SONET(see Yu, column 3, lines 25-27).

As to claim 14, Ramsden discloses the claimed feature of "wherein when said user device coupled to said second EoS device stops sending data to said second EoS device, the data volume in the data cache of said first EoS device decreases gradually; wherein when the data volume in the data cache of said first EoS device reaches said lower threshold, the first EoS device generates at least one LFP frame having a control field to start sending; and wherein said LFP frames are given priority for decapsulation at said second EoS device to phrase and execute flow-control to control the user device coupled to said second EoS device to send data again" described as control of the rate of transmission of remote Ethernet switches by flow control means 203 is under-taken by process 304 identified in Fig. 3. Ramsden further discloses that the predetermined threshold level may be configured by use of a pointer or other suitable marker device configured to monitor the amount of data (in bytes) that buffer B is currently holding

relative to a threshold reference data amount level (see Yu, column 16, paragraph [0033]). Most of the limitation of this claim have been noted in the rejection of claim 13, therefore it is rejected as set forth above.

As to claim 15, Ramsden does not explicitly disclose the claimed feature of "wherein an LFP transparent pattern is used when said second EoS device identifies and processes an LFP frame; and wherein said second EoS device explains and executes said LFP frames according to whether said user device coupled to said second EoS device supports full duplex, wherein: if said user device works in full duplex mode, it is unnecessary to phrase the LFP frames, and the LFP frames are sent directly to said user device; and if said user device works in half duplex mode, the control field of each LFP frame is phrased, wherein if the control field controls to start sending, a back pressure control signal will be cancelled, and otherwise, the back pressure control signal will be sent to make said user device detect a conflict and stop transmitting data". However, Yu discloses the transparency processing as after FCS computation, the EoS apparatus examnines the entire frame between any two flag Sequences (see Yu, column 18, lines 10-30). Thus, it would have been obvious to one ordinary skill in the art at the time the invention was made to modify the method of Ramsden by utilizing transparent pattern as taught by Yu to achieve the claimed feature of "wherein an LFP transparent pattern is used when said second EoS device identifies and processes an LFP frame; and wherein said second EoS device explains and executes said LFP frames according to whether said user device coupled to said second EoS device supports full duplex, wherein: if said user device works in full duplex mode, it is unnecessary to phrase the LFP frames, and the LFP frames are sent directly to said user device; and if said user device works in half duplex mode, the control field of each LFP frame is phrased, wherein if the control field controls to start sending, a

back pressure control signal will be cancelled, and otherwise, the back pressure control signal will be sent to make said user device detect a conflict and stop transmitting data". Such combination would have permitted Ramsden's method to provide a way to communication between a telecom SDH/SONET transmission device and a remote access datacom device by adapting MAC frame directly to SDH/SONET(see Yu, column 3, lines 25-27).

As to claim 16, all the limitations of this claim are similar in scope to claim 14, therefore it is rejected under same rationale as claim 14.

10. Claims 11, 20 and 21 are rejected under 35 U.S.C. 103(a) as being unpatentable over European Patent Application No EP 1006751 A2 issued to Ramsden et al. in view of Crayford(US Pat No. 5,673,254).

Regarding claim 11, Ramsden does not explicitly disclose the claimed feature of "wherein if said data volume exceeds said upper threshold, the control field will contain 0x0FFFFH, and if said data volume falls below said lower threshold, the control field will contain 0x0H; and wherein said control field is controlled in an Xon/Xoff fashion". Crayford, from the same or similar field of endeavors, discloses the unused code-groups to be utilized to transmit flow control information and it is also possible to signal flow control information within the packet data stream(see Crayford, column 15, lines 38-42). Moreover, Crayford further discloses "Utilizing some unused code-groups can flow simple and flexible flow control to be implemented. For instance, mapping

code-groups to mean "XON, XOFF" allows a minimal code space to be used"(see Crayford, column 15, lines 48-55). Thus, it would have been obvious to one ordinary skill in the art at the time the invention was made to modify the method of Ramsden by utilizing "Xon/Xoff" fashion as taught by Crayford to achieve the claimed feature of "wherein if said data volume exceeds said upper threshold, the control field will contain 0x0FFFFH, and if said data volume falls below said lower threshold, the control field will contain 0x0H; and wherein said control field is controlled in an Xon/Xoff fashion". Such combination would have permitted Ramsden's method to provide excellent performance using substantially less dedicated buffer memory, simplifying the buffering scheme and allowing cost reductions over an Ethernet switch having full-duplex, and half-duplex ports (see Crayford, column 5, lines 64-66).

Regarding claims 20 and 21, they are similar in scope to claim 11, therefore rejected under same rationale as set forth above.

Conclusion

11. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Russel et al. (US Pat No. 6,584,118 B1)

Russel et al. (US Pat No. 6,496,519 B1)

Kulkarni et al. (US Pat No. 6,414,966 B1)

Klish. (US Pat No. 6,014,708)

Miras (US Pat Appl No. 2004/0039806 A1)

12. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Bryan Bui whose telephone number is (571)-270-1981. The examiner can normally be reached on Monday-Friday from 7:30 am to 5:00 pm. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Frantz Coby can be reached on (571)-272-4017. The fax phone number for the organization where this application or proceeding is assigned is (571)-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business

Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from USPTO Customer Service Representative or access to the automated information system, call 1-(800)-786-9199 (in U.S.A or Canada) or 1-(571)-272-1000.

Examiner

FRANTZ COBY
SUPERVISORY PATENT EXAMINER

Bryan P. Bui